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RECONNAISSANCE INVESTIGATION, WATER SUPPLY AND WATER QUALITY CONTROL STUDY. BEAVER CREEK WATERSHED, OREGON

Federal Water Pollution Control Administration
Portland, Oregon

June 1966

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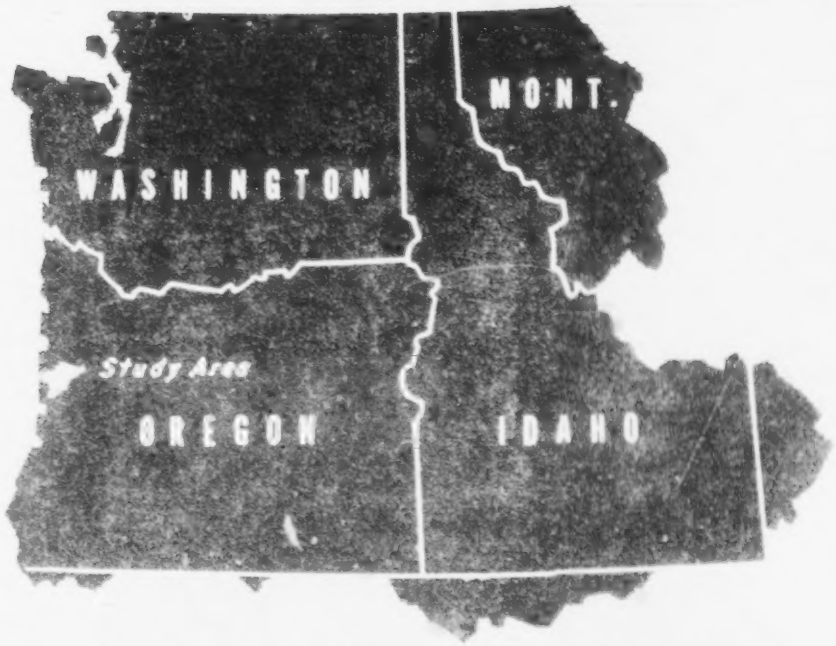
WATER SUPPLY AND WATER QUALITY CONTROL STUDY



Federal Water Pollution Control Administration

JUNE 1966

UNITED STATES DEPARTMENT OF THE INTERIOR

I

RECONNAISSANCE INVESTIGATION
WATER SUPPLY & WATER QUALITY CONTROL STUDY

BEAVER CREEK WATERSHED, OREGON

A reconnaissance survey has been made which discloses a need for storage for municipal water supply. No need is foreseen in the basin for water quality control storage. This conclusion is based on economic, demographic, and engineering studies. A detailed study will be conducted should specific storage sites be considered in the future.

Prepared at the Request of the District Engineer,
U. S. Army Engineer District, Portland
Corps of Engineers, Portland, Oregon

U. S. DEPARTMENT OF THE INTERIOR
Federal Water Pollution Control Administration
Portland, Oregon

JUNE 1966

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BEAVER CREEK WATERSHED, OREGON

REQUEST AND AUTHORITY

The request for this investigation was made by the District Engineer, U. S. Army Corps of Engineers, Portland, Oregon, by letter dated October 15, 1965. Authority for the investigation and report is the "Federal Water Pollution Control Act," as amended (33 U.S.C. 466 et seq.), and the "Memorandum of Agreement" dated November 4, 1958, between the Departments of the Army and Health, Education, and Welfare, relative to the Water Supply Act of 1958, as amended (43 U.S.C. 390b).

PURPOSE AND SCOPE

The Corps of Engineers requested data on present municipal and industrial (M&I) water supply and water quality control needs in Beaver Creek Watershed, Oregon, and on such future requirements as could be estimated within the scope of a reconnaissance study. These data are to be used to determine the advisability of initiating detailed investigations of specific storage sites. A more detailed study will be conducted at such time as the Corps of Engineers may request information relating to a specific site(s). Initial projections are made to the year 2020 with an interim date of 1980.

STUDY AREA DESCRIPTION

The area under consideration is the Beaver Creek Watershed located 8 miles south of Newport, in Lincoln County, Oregon. The creek drains about 33 square miles on the coastal slope of the Coast Range. Seal Rock, situated on the coast about 1.5 miles south of Beaver Creek, is the only community in the vicinity. (See Location Map, back cover.)

SUMMARY OF FINDINGS AND CONCLUSIONS

The Seal Rock Water District now utilizes water sources outside the Beaver Creek Watershed. When demand for water increases beyond the capability of existing sources, the Water District plans to develop a source on the North Fork Beaver Creek which would ultimately supply the needs of several communities scattered along about 13 miles of the Oregon Coast.

Although population is expected to increase in the lower Beaver Creek Basin, no problems are expected to develop which would require upstream storage for water quality control, assuming adequate treatment of domestic wastes--at least 85 percent removal of biochemical oxygen demand (BOD).

WATER RESOURCES OF THE STUDY AREA

The average annual yield of Beaver Creek near tidewater is estimated to be about 40,000 acre-feet. Based on precipitation and runoff patterns over the past 25 years, the Oregon State Water Resources Board has developed the following estimates of average monthly stream discharges:

January	149 cfs	July	9 cfs
February	164 cfs	August	5 cfs
March	115 cfs	September	6 cfs
April	71 cfs	October	22 cfs
May	40 cfs	November	82 cfs
June	17 cfs	December	135 cfs

These limited data based on estimates indicate that a better knowledge of streamflow patterns will be needed to permit detailed studies. Stream gages should be established near tidewater and at other suitable locations.

Adequate data on water quality are also lacking. Field surveys, including stream sampling, will be necessary should a more detailed study be requested. A brief reconnaissance of the area and data gathered in nearby watersheds, however, indicate that water in the upper reaches of North Fork Beaver Creek is relatively free of color and turbidity, low in mineral content, and generally of adequate quality for all anticipated uses.

THE ECONOMY

The economy of the area is supported by forestry, recreation, tourism, and a small amount of agriculture. Population in 1960 was estimated at 500 persons, with most of the inhabitants located in the vicinity of Seal Rock. Scenic attractions along the Oregon Coast, plus recreational activities afforded by the streams, bays, and forests have made tourism an increasingly important factor in the area's economy. Another factor is the present trend toward subdivision of coastal lands for homesite development.

From these considerations, design populations shown below were developed for Seal Rock and the study area.

Year	Seal Rock	Total Study Area
1960	240	500
1980	350	750
2000	600	1,200
2020	900	2,000

WATER REQUIREMENTS--MUNICIPAL

Seal Rock obtains water from Dear and Hill Creeks, small streams just north of town. Disinfection is the only treatment. Plant capacity in 1960 was about 0.1 million gallons per day (mgd), serving an estimated 250 people. The population served increased to about 500 by 1964. The community has a surface water right of 1.26 cubic feet per second (cfs), or 0.8 mgd. Water needs in rural areas are supplied by individual surface sources; geologic conditions are unfavorable for the development of ground water.

WATER QUALITY CONTROL

1. Domestic Wastes

Wastes entering Beaver Creek are minimal and include pollutants from domestic sources and land runoff. Domestic and commercial wastes at Seal Rock and most of the study area are treated by individual facilities such as septic tanks.

2. Water Temperature

Temperature is an important water quality parameter, particularly as it affects the propagation of anadromous fish. Futhermore, temperature conditions in a stream substantially affect its capacity to assimilate organic waste. However, because the migration pattern of anadromous fish is adapted to existing thermal conditions and because waste discharges to the stream are expected to remain negligible in the future, storage releases for temperature control appear unnecessary in the Beaver Creek Watershed.

MUNICIPAL WATER SUPPLY & WATER QUALITY CONTROL STORAGE NEEDS

The Seal Rock Water District serves a number of residential and commercial users spread over a large area along the coast. The demand for water is expected to triple in 10 years. Estimates of future water requirements are based on projections of current population growth in the area. To meet future needs, the Water District plans to pipe water from a source on Henderson Creek, located about 7 miles north of Seal Rock. Further demand would be met by storage on North Fork Beaver Creek. Assuming that these existing and planned developments would continue to serve the area through year 2020, an additional requirement of 40 mg (120 acre-feet) is foreseen which could be provided by storage or appropriated natural stream flow from the North Fork of Beaver Creek.

The Lincoln County Court has recently sponsored studies of water supply needs in the developing areas of the County. The conclusions drawn were that the most satisfactory and beneficial way to insure sufficient water for the present and future populated areas, including the Beaver Creek Watershed, would be to develop higher-elevation potable sources of water, tie present systems together, make improvements in pipe size and storage facilities, and eventually construct a continuous supply line the full length of the coast. The North Fork Beaver Creek was selected as the most suitable source of supply for Seal Rock and adjacent communities along the coast.

The Beaver Creek Watershed is sparsely settled and wastes discharged to the stream from domestic and agricultural sources are minimal. Although population of the study area is forecast to quadruple, future domestic and municipal wastes are not expected to overtax the assimilative capacity of the stream, assuming that these wastes are given adequate treatment (i.e., treatment which would result in an overall removal of at least 85 percent of all oxidizable organic material

discharged to the stream). No need is foreseen, therefore, for flow regulation storage for water quality control.

The Oregon State Game Commission recommends a minimum perennial streamflow for fish life of 3 cfs from the North Fork and 1 cfs from the South Fork. If this flow cannot be maintained by adjudication of water rights for irrigation and other consumptive uses, then a need for storage is indicated.

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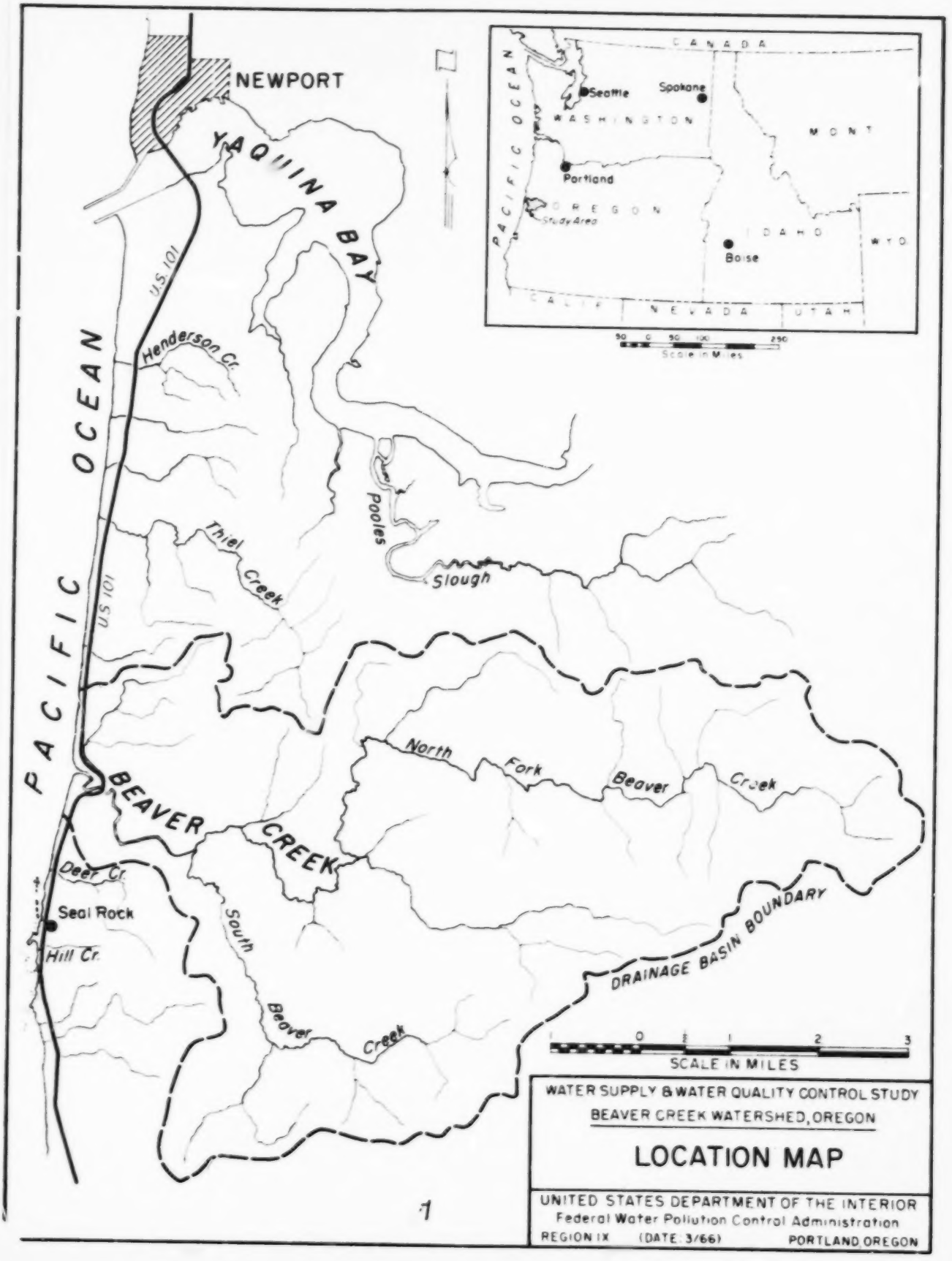
NEWPORT
YAQUINA BAY
PACIFIC OCEAN
U.S. 101
Henderson Cr.
Pooles Slough
Thiel Creek
North Fork Beaver Creek
BEAVER CREEK
Deer Cr.
Seal Rock
Hill Cr.
South Beaver Creek
DRAINAGE BASIN BOUNDARY
0 1 2 3
SCALE IN MILES
CANADA
Seattle
Spokane
WASHINGTON
MONT
Portland
OREGON
Study Area
IDAHO
WYO
Boise
CALIF
NEVADA
UTAH
Scale in Miles
WATER SUPPLY & WATER QUALITY CONTROL STUDY
BEAVER CREEK WATERSHED, OREGON
LOCATION MAP
UNITED STATES DEPARTMENT OF THE INTERIOR
Federal Water Pollution Control Administration
REGION IX (DATE: 3/66) PORTLAND, OREGON